

## REMARKS

### I. Claim Objections

Claims 1 to 4 were objected to because they lacked a period at the end.

Claims 1 to 4 have been corrected by adding a period at the end.

Claims 4 and 5 were objected as being in improper form because a multiple dependent claim cannot depend on another multiple dependent claim.

Claim 5 has been canceled without replacement.

Claim 4 has been amended so that it now depends only on claim 1.

For the foregoing reasons withdrawal of the objections to the form of claims 1 to 4 is respectfully requested.

### II. Rejections of Claim 5 under 35 U.S.C. 101 and 112

Claim 5 was rejected under 35 U.S.C. 101 and also under 35 U.S.C. 112 for indefiniteness. These rejections have been obviated by cancellation of claim 5 without replacement – i.e. no new “use” claim or method-of-use claim has been added above. Also the “use” claim has not been replaced by a process or method claim.

On the other hand, new claim 7 for an “optical element” with similar subject matter to canceled claim 5 has been added. According to new claim 7 the claimed optical element “consists of” the optical glass of claim 1 and thus corresponds in its claim scope to claim 1. However new claim 7 is clearly in

accordance with 35 U.S.C. 101, since an article, namely an optical element, is claimed.

Examples of the optical element of claim 7 in the fields recited on page 14 of the specification would of course include a lens, a prism, etc, since it is well known in the art that these elements are used in the fields recited on page 14. Furthermore examples of the optical elements that would be made from the optical glass of the invention are recited on page 4, lines 4 to 16, of applicants' description. Some steps for forming optical elements are mentioned in connection with the prior art on page 6, about line 19, of applicants' description. These steps include "hot-shaping". This and other such method steps are notoriously well known in the art. Thus claim 7 is fully supported by the disclosure.

### III. Obviousness Rejection of Claims 1 to 4 based on Ritze, et al

Claims 1 to 5 were rejected as obvious under 35 U.S.C. 103 (a) over Ritze, et al.

The obviousness rejection described on page 3 of the Office Action is based on the *alleged* overlapping concentration ranges for the various oxide ingredients and refractive index and dispersion value ranges disclosed in Ritze, et al.

Ritze, et al, includes a single independent claim 1 in column 4. The refractive index and Abbe number ranges in this claim 1 of Ritze do overlap the corresponding optical property ranges in applicants' claim.

However the concentration range for the important required aluminum oxide ingredient in applicants' claims 1 to 4, namely 16 to 20 %, does not overlap the range according to claim 1 of Ritze, et al, which is 5.3 to 15.2 %. The same can be said of the disclosures in column 2 of the reference, which describes the claimed invention of Ritze, et al: the range for  $\text{Al}_2\text{O}_3$  of applicants' claims 1 to 4 does not overlap the range for  $\text{Al}_2\text{O}_3$  in column 2 of Ritze, et al. Also none of the examples in columns 3 and 4 of Ritze, et al, discloses a value for  $\text{Al}_2\text{O}_3$  concentration that is above 15.2 % by weight, which is below applicants' lower limit for that ingredient.

The only disclosure of a concentration range for  $\text{Al}_2\text{O}_3$  that is broader than the ranges for their claimed and described invention appears in the abstract. However the abstract describes the invention in general terms and does not include all the limitations and features, particularly all value ranges, of the disclosed and claimed invention of Ritze, et al.

If the rejection for the applicants' claims is to be based solely on the abstract (as it must in this case since column 2 does not teach the required broad concentration range for  $\text{Al}_2\text{O}_3$ ), then all ranges in the abstract must be compared with the ranges recited in applicants' claims 1, 2 and 3 and it must be shown that all the ranges of that abstract overlap with the ranges in applicants' claims 1, 2 and 3. In other words, the abstract must disclose all the ranges.

In the present case the abstract does disclose a broader range for  $\text{Al}_2\text{O}_3$  than is disclosed in the description of the invention of Ritze, et al in column 2 and following and as claimed in claim 1 of that reference, but the abstract does not

disclose any ranges for refractive index and Abbe number. The Abstract of the reference merely states that the index of refraction is low and the dispersion "elevated" for the glass composition recited in the abstract. Also the various ranges for SiO<sub>2</sub> and alkali oxides are very different in the abstract from those in column 2 and in claim 1 of the Ritze reference.

There is no teaching or suggestion in the Ritze reference that the range for e.g. the Abbe number associated with the greater Al<sub>2</sub>O<sub>3</sub> concentrations and the different alkali metal oxide concentrations of the Ritze abstract truly overlaps or is within the applicants' claimed range for the dispersion values of 64 to 72. In fact, there is teaching of the opposite in the Ritze reference in the examples in columns 3 and 4. The reported Abbe numbers in the table for the examples with the highest concentration ranges of Al<sub>2</sub>O<sub>3</sub>, namely examples 3, 4, 5, 6, 16, 17, are respectively 62.2, 63.0, 55.1, 58.9, 51.5 and 44.7. These values are all well below the lower limit for the Abbe number in applicants' claims 1 to 3, namely 64.

One skilled in the art would not expect that the glasses of Ritze with higher Al<sub>2</sub>O<sub>3</sub> values above 15.2 % would have Abbe numbers within the applicants' claimed range of 64 to 72 from the measured values for Abbe numbers in the examples in columns 3 and 4.

In any case the disclosure of the abstract of Ritze, et al, cannot be relied on to reject claims 1 to 3 as obvious because it does not disclose or suggest numerical ranges for the optical properties, i.e. the index of refraction and Abbe number, associated with the disclosed glass composition of the abstract, which is significantly different from that disclosed in column 2 and claim 1 of Ritze, et al.

Predictability is lacking here because of the large number of ingredient concentrations being varied (the art reference does not recognize the  $\text{Al}_2\text{O}_3$  concentration alone as a result effective variable for predication of changes in the Abbe number). Some predictability is required to establish a case of *prima facie* obviousness. Also see MPEP 2143.02.

Withdrawal of the rejection of amended claims 1 to 4 as obvious under 35 U.S.C. 103 (a) over Ritze, et al, is respectfully requested.

IV. Are New claims 6, 8 and 9 Obvious from Ritze, et al?

New claims 6, 8 and 9 claim preferred embodiments of the optical glass according to claim 1 with special features and limitations that further distinguish them from Ritze, et al, and provide additional advantages over the prior art.

Claims 8 and 9 claim the preferred features that the claimed optical glass is substantially free (according to the definition on page 8, lines 20 to 26, of applicants' specification) of lead and arsenic respectively.

Ritze, et al, does not disclose or suggest the negative limitations of claims 8 and 9, which provide an environmentally more compatible glass. Examples 9, 13, 14 and 15 of Ritze, et al, contain  $\text{PbO}$ . All the examples of Ritze, et al, include some arsenic. According to claim 1 of Ritze, et al, arsenic is a required ingredient and must be included with a concentration of 0.2 to 0.3 wt. %. The glasses of Ritze, et al, are environmentally undesirable.

It is respectfully submitted that Ritze, et al, teaches the opposite from claim 9, because Ritze, et al, requires some arsenic in his glass. It is well

established that a reference that requires or teaches the opposite from a claimed invention cannot be used to reject the claimed invention under 35 U.S.C. 103 (a). See, for example, MPEP 2145. X. D. and Federal Circuit Decisions, such as *In re Dow Chemical Co.*, 837 F.2d 469,473, 5 U.S.P.Q.2d 1529, 1532 (Fed.Cir. 1988).

New claim 6 includes all the features and limitations of claim 1 and also the additional feature that the optical glass contains from 0 to 1 wt. % of  $\text{Sb}_2\text{O}_3$ . This claim is supported by the original claim 4 and the disclosure on page 14, line 1, of applicants' description.

In contrast,  $\text{Sb}_2\text{O}_3$  is a required ingredient of the glass of Ritze, et al, in an amount of from 1.6 to 30.4 wt.%. Thus claim 6 includes another non-overlapping concentration range: the upper limit for the  $\text{Sb}_2\text{O}_3$  concentration in the new claim 6 is below that lower limit allowed in the glass of Ritze, et al, according to column 2 and claim 1 of Ritze, et al.

Furthermore amounts of  $\text{Sb}_2\text{O}_3$  above 1 % in the glass will give it a yellow tint, which is unacceptable in typical applications of this glass, and are also hazardous from an environmental standpoint. The  $\text{Sb}_2\text{O}_3$  used in applicants' invention is only a refining agent.

Thus it is respectfully submitted that Ritze, et al, does not establish a case of *prima facie* obviousness of applicants' new claims 6, 8 and/or 9.

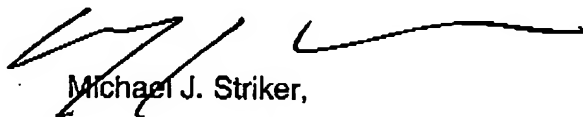
V. Information Disclosure Statements

The Information Disclosure Statement that was filed December 3, 2004 was not returned with the Office Action, although the Office Action issued December 15, 2004. The return of an initialed copy of the Information Disclosure Statement filed December 3, 2004 is expected with the next Office Action or Notice of Allowance, which shows that the references that were filed with it were considered.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,



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